

ABSTRACT

The invention includes processes for combined polymer surface treatment and metal deposition. Processes of the invention include forming an aqueous solution containing a metal activator, such as an oxidized species of silver, cobalt, ruthenium, cerium, iron, manganese, nickel, rhodium, or vanadium. The activator can be suitably oxidized to a higher oxidation state electrochemically. Exposing a part to be plated (such as an organic resin, e.g. a printed circuit board substrate) to the solution enables reactive hydroxyl species (e.g. hydroxyl radicals) to be generated and to texture the polymer surface. Such texturing facilitates good plated metal adhesion. As part of this contacting process sufficient time is allowed for both surface texturing to take place and for the oxidized metal activator to adsorb onto said part. The part is then contacted with a reducing agent capable of reducing the metal activator to a lower ionic form, or a lower oxidation state. That reduction can result in the formation of metallic catalytic material over the surface of the part. The reduced metal activator can then function to catalyze the electroless deposition of metal such as copper from solution by contacting the part with the plating solution.

0912533-101498